



SEQUENCE LISTING

<110> Romberg, Max F.
Larsen, Neils
Kim, Kwan

<120> Melanocortin-4 Receptor Gene and Use as a Genetic Marker for Fat Content, Weight Gain, and/or Feed Consumption in Animals

<130> ISURF 2413

<140> 09/380,419

<141> 2000-07-24

<160> 30

<170> PatentIn version 3.1

<210> 1

<211> 746

<212> DNA

<213> Sus scrofa

<220>

<221> variation

<222> (678)..(678)

<223> G/A

<400> 1

```
acaagaatct gcattcaccc atgtactttt tcatctgtag cctggctgtg gctgatatgc      60
tggtgagcgt ttccaatggg tcagaaacca ttgtcatcac cctattaaac agcacggaca      120
cggacgcaca gagtttcaca gtgaatattg ataatgtcat tgactcagtg atctgtagct      180
ccttactcgc ctcaatttgc agcctgcttt cgattgcagt ggacaggtat tttactatct      240
tttatgtctt ccagtaccat aacattatga cagttaagcg ggttggaatc atcatcagtt      300
gtatctgggc agtctgcacg gtgtcgggtg ttttgttcat catttactca gatagcagtg      360
ctgttattat ctgcctcata accgtgttct tcaccatgct ggctctcatg gcttctctct      420
atgtccacat gttcctcatg gccagactcc acattaagag gatcgccgtc ctcccaggca      480
ctggcaccat ccgccaaggt gccaacatga agggggcaat taccctgacc atcttgattg      540
gggtctttgt ggtctgctgg gccccttct tctccactt aatattctat atctcctgcc      600
cccagaatcc atactgtgtg tgcttcatgt ctactttta tttgtatctc atcctgatca      660
tgtgtaattc catcatcrat ccctgattt atgcactccg gagccaagaa ctgaggaaaa      720
ccttcaaaga gatcatctgt tgctat                                           746
```

<210> 2
 <211> 840
 <212> DNA
 <213> Homo sapiens

<400> 2
 atatcttagt gattgtggca atagccaaga acaagaatct gcattcaccc atgtactttt 60
 tcatctgcag cttggctgtg gctgatatgc tgggtgagcgt ttcaaattga tcagaaacca 120
 ttatcatcac cctattaaac agtacagata cggatgcaca gagtttcaca gtgaatattg 180
 ataatgtcat tgactcgggtg atctgtagct ccttgcttgc atccatttgc agcctgcttt 240
 caattgcagt ggacaggtac ttactatct tctatgctct ccagtaccat aacattatga 300
 cagttaagcg ggttgggatc agcataagtt gtatctgggc agcttgcacg gtttcaggca 360
 ttttgttcat catttactca gatagtagtg ctgtcatcat ctgcctcatc accatgttct 420
 tcaccatgct ggctctcatg gcttctctct atgtccacat gttcctgatg gccaggcttc 480
 acattaagag gattgctgtc ctccccggca ctgggtgcat ccgccaaggt gccaatatga 540
 agggagcgt taccttgacc atcctgattg gcgtctttgt tgtctgctgg gccccattct 600
 tcctccactt aatattctac atctcttgc ctcagaatcc atattgtgtg tgcttcatgt 660
 ctcactttaa cttgtatctc atactgatca tgtgtaattc aatcatcgat cctctgattt 720
 atgcactccg gagtcaagaa ctgaggaaaa ccttcaaaga gatcatctgt tgctatcccc 780
 tgggaggcct ttgtgacttg tctagcagat attaaatggg gacagagcac gcaatatagg 840

<210> 3
 <211> 311
 <212> PRT
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (298)..(298)
 <223> "X" can be any amino acid

<400> 3

Gln Leu Phe Val Ser Pro Glu Val Phe Val Thr Leu Gly Val Ile Ser
 1 5 10 15

Leu Leu Glu Asn Ile Leu Val Ile Val Ala Ile Ala Lys Asn Lys Asn
 20 25 30

Leu His Ser Pro Met Tyr Phe Phe Ile Cys Ser Leu Ala Val Ala Asp

35					40					45					
Met	Leu	Val	Ser	Val	Ser	Asn	Gly	Ser	Glu	Thr	Ile	Ile	Ile	Thr	Leu
50					55					60					
Leu	Asn	Ser	Thr	Asp	Thr	Asp	Ala	Gln	Ser	Phe	Thr	Val	Asn	Ile	Asp
65					70					75					80
Asn	Val	Ile	Asp	Ser	Val	Ile	Cys	Ser	Ser	Leu	Leu	Ala	Ser	Ile	Cys
				85					90					95	
Ser	Leu	Leu	Ser	Ile	Ala	Val	Asp	Arg	Tyr	Phe	Thr	Ile	Phe	Tyr	Ala
			100					105					110		
Leu	Gln	Tyr	His	Asn	Ile	Met	Thr	Val	Lys	Arg	Val	Gly	Ile	Ser	Ile
		115					120					125			
Ser	Cys	Ile	Trp	Ala	Ala	Cys	Thr	Val	Ser	Gly	Ile	Leu	Phe	Ile	Ile
	130					135					140				
Tyr	Ser	Asp	Ser	Ser	Ala	Val	Ile	Ile	Cys	Leu	Ile	Thr	Met	Phe	Phe
145					150					155					160
Thr	Met	Leu	Ala	Leu	Met	Ala	Ser	Leu	Tyr	Val	His	Met	Phe	Leu	Met
				165					170					175	
Ala	Arg	Leu	His	Ile	Lys	Arg	Ile	Ala	Val	Leu	Pro	Gly	Thr	Gly	Ala
			180					185					190		
Ile	Arg	Gln	Gly	Ala	Asn	Met	Lys	Gly	Ala	Ile	Thr	Leu	Thr	Ile	Leu
		195					200					205			
Ile	Gly	Val	Phe	Val	Val	Cys	Trp	Ala	Pro	Phe	Phe	Leu	His	Leu	Ile
	210					215					220				
Phe	Tyr	Ile	Ser	Cys	Pro	Gln	Asn	Pro	Tyr	Cys	Val	Cys	Phe	Met	Ser
225					230					235					240
His	Phe	Asn	Leu	Tyr	Leu	Ile	Leu	Ile	Met	Cys	Asn	Ser	Ile	Ile	Asp
			245						250					255	
Pro	Leu	Ile	Tyr	Ala	Leu	Arg	Ser	Gln	Glu	Leu	Arg	Lys	Thr	Phe	Lys
			260					265					270		

Glu Ile Ile Cys Cys Tyr Pro Leu Gly Gly Leu Cys Asp Leu Ser Ser
 275 280 285

Arg Tyr Ala Pro Pro Glu Asn Asp Ile Xaa Val Ile Cys Asn Phe Ile
 290 295 300

Asp Glu Asn Thr Ile Ala Leu
 305 310

<210> 4
 <211> 248
 <212> PRT
 <213> Sus scrofa

<400> 4

Lys Asn Leu His Ser Pro Met Tyr Phe Phe Ile Cys Ser Leu Ala Val
 1 5 10 15

Ala Asp Met Leu Val Ser Val Ser Asn Gly Ser Glu Thr Ile Val Ile
 20 25 30

Thr Leu Leu Asn Ser Thr Asp Thr Asp Ala Gln Ser Phe Thr Val Asn
 35 40 45

Ile Asp Asn Val Ile Asp Ser Val Ile Cys Ser Ser Leu Leu Ala Ser
 50 55 60

Ile Cys Ser Leu Leu Ser Ile Ala Val Asp Arg Tyr Phe Thr Ile Phe
 65 70 75 80

Tyr Ala Leu Gln Tyr His Asn Ile Met Thr Val Lys Arg Val Gly Ile
 85 90 95

Ile Ile Ser Cys Ile Trp Ala Val Cys Thr Val Ser Gly Val Leu Phe
 100 105 110

Ile Ile Tyr Ser Asp Ser Ser Ala Val Ile Ile Cys Leu Ile Thr Val
 115 120 125

Phe Phe Thr Met Leu Ala Leu Met Ala Ser Leu Tyr Val His Met Phe
 130 135 140

Leu Met Ala Arg Leu His Ile Lys Arg Ile Ala Val Leu Pro Gly Thr
 145 150 155 160

Gly Thr Ile Arg Gln Gly Ala Asn Met Lys Gly Ala Ile Thr Leu Thr
 165 170 175

Ile Leu Ile Gly Val Phe Val Val Cys Trp Ala Pro Phe Phe Leu His
 180 185 190

Leu Ile Phe Tyr Ile Ser Cys Pro Gln Asn Pro Tyr Cys Val Cys Phe
 195 200 205

Met Ser His Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ser Ile
 210 215 220

Ile Asn Pro Leu Ile Tyr Ala Leu Arg Ser Gln Glu Leu Arg Lys Thr
 225 230 235 240

Phe Lys Glu Ile Ile Cys Cys Tyr
 245

<210> 5
 <211> 20
 <212> DNA
 <213> Sus scrofa

<400> 5
 tggcaatagc caagaacaag 20

<210> 6
 <211> 20
 <212> DNA
 <213> Sus scrofa

<400> 6
 caggggatag caacagatga 20

<210> 7
 <211> 18
 <212> DNA
 <213> Sus scrofa

<400> 7
 ttaagtggag gaagaagg 18

<210> 8
 <211> 19

<212> DNA
 <213> Sus scrofa
 <400> 8
 cattatgaca gttaagcgg 19

<210> 9
 <211> 20
 <212> DNA
 <213> Sus scrofa
 <400> 9
 taccctgacc atcttgattg 20

<210> 10
 <211> 22
 <212> DNA
 <213> Sus scrofa
 <400> 10
 atagcaacag atgatctctt tg 22

<210> 11
 <211> 24
 <212> PRT
 <213> Sus scrofa
 <400> 11
 Met Ser His Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ser Ile
 1 5 10 15

Ile Asp Pro Leu Ile Tyr Ala Leu
 20

<210> 12
 <211> 24
 <212> PRT
 <213> Homo sapiens

<400> 12
 Met Ser His Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ser Ile
 1 5 10 15

Ile Asp Pro Leu Ile Tyr Ala Leu
 20

<210> 13
 <211> 24

<212> PRT
<213> Rattus norvegicus

<400> 13

Met Ser His Phe Asn Leu Tyr Leu Ile Leu Ile Met Cys Asn Ala Val
1 5 10 15

Ile Asp Pro Leu Ile Tyr Ala Leu
20

<210> 14
<211> 23
<212> PRT
<213> Ovis aries

<400> 14

Met Ser His Phe Asn Met Tyr Leu Ile Leu Ile Met Cys Asn Ser Val
1 5 10 15

Ile Asp Pro Leu Ile Tyr Ala
20

<210> 15
<211> 23
<212> PRT
<213> Bos taurus

<400> 15

Met Ser His Phe Asn Met Tyr Leu Ile Leu Ile Met Cys Asn Ser Val
1 5 10 15

Ile Asp Pro Leu Ile Tyr Ala
20

<210> 16
<211> 24
<212> PRT
<213> Bos taurus

<400> 16

Met Ser Leu Phe Gln Val Asn Gly Val Leu Ile Met Cys Asn Ala Ile
1 5 10 15

Ile Asp Pro Phe Ile Tyr Ala Leu
20

<210> 17
 <211> 22
 <212> PRT
 <213> Homo sapiens

<400> 17

Ala His Phe Asn Thr Tyr Leu Val Leu Ile Met Cys Asn Ser Val Ile
 1 5 10 15

Asp Pro Leu Ile Tyr Ala
 20

<210> 18
 <211> 22
 <212> PRT
 <213> Mus musculus

<400> 18

Ala His Phe Asn Thr Tyr Leu Val Leu Ile Met Cys Asn Ser Val Ile
 1 5 10 15

Asp Pro Leu Ile Tyr Ala
 20

<210> 19
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 19

Met Ser His Phe Asn Met Tyr Leu Ile Leu Ile Met Cys Asn Ser Val
 1 5 10 15

Met Asp Pro Leu Ile Tyr Ala
 20

<210> 20
 <211> 22
 <212> PRT
 <213> Homo sapiens

<400> 20

Ser Tyr Phe Asn Leu Phe Leu Ile Leu Ile Ile Cys Asn Ser Val Val
 1 5 10 15

Asp Pro Leu Ile Tyr Ala
20

<210> 21
<211> 25
<212> PRT
<213> Bos taurus

<400> 21

Leu Ala Tyr Glu Lys Phe Phe Leu Leu Leu Ala Glu Phe Asn Ser Ala
1 5 10 15

Met Asn Pro Ile Ile Tyr Ser Tyr Arg
20 25

<210> 22
<211> 19
<212> PRT
<213> Homo sapiens

<400> 22

Phe Leu Leu Leu Ala Glu Ala Asn Ser Leu Val Asn Ala Ala Val Tyr
1 5 10 15

Ser Cys Arg

<210> 23
<211> 22
<212> PRT
<213> Homo sapiens

<400> 23

Val Phe Ala Phe Cys Ser Met Leu Cys Leu Leu Asn Ser Thr Val Asn
1 5 10 15

Pro Leu Ile Tyr Ala Leu
20

<210> 24
<211> 21
<212> PRT
<213> Homo sapiens

<400> 24

Phe Gln Phe Phe Phe Trp Ile Gly Tyr Cys Asn Ser Ser Leu Asn Pro

1 5 10 15

Val Ile Tyr Thr Ile
20

<210> 25
<211> 22
<212> PRT
<213> Rattus norvegicus

<400> 25

Phe Asp Phe Val Val Ile Leu Thr Tyr Ala Asn Ser Cys Ala Asn Pro
1 5 10 15

Ile Leu Tyr Ala Phe Leu
20

<210> 26
<211> 16
<212> PRT
<213> Homo sapiens

<400> 26

Leu Ala Tyr Ser Asn Ser Ser Val Asn Pro Ile Ile Tyr Ala Phe Leu
1 5 10 15

<210> 27
<211> 30
<212> DNA
<213> Sus scrofa

<400> 27
gtgtaattcc atcatcgatc ccctgattta 30

<210> 28
<211> 30
<212> DNA
<213> Sus scrofa

<400> 28
gtgtaattcc atcatcaatc ccctgattta 30

<210> 29
<211> 10
<212> PRT
<213> Sus scrofa

<400> 29

Cys Asn Ser Leu Ile Asp Pro Leu Ile Tyr
1 5 10

<210> 30
<211> 10
<212> PRT
<213> Sus scrofa

<400> 30

Cys Asn Ser Leu Ile Asn Pro Leu Ile Tyr
1 5 10